CLAIMS

1. A method of analyzing a mask for use in photolithography, the method comprising:

loading a mask file into a defect analysis tool;

specifying a job to be run using the mask file, wherein the job defines parameters used in processes performed uniformly for defects on the mask;

managing and distributing the job to computation resources;

running the job using the mask file and defined parameters on the computation resources;

outputting results of the job from the computation resources, wherein the results include printability results for the defects on the mask.

2. The method of Claim 1, wherein the mask file includes a standard mask format file (MFF).

3. The method of Claim 2, further including converting mask data into the standard MFF.

4. The method of Claim 1, wherein the parameters include settings relating to the mask.

5. The method of Claim 4, wherein the settings include at least one of mask type, phase of the mask, and transmission of the mask.

6. The method of Claim 1, wherein the parameters include settings relating to an inspection system that provided information for the mask file.

7. The method of Claim 6, wherein the settings include at least one of an inspection system vendor and an inspection system model.

8. The method of Claim 1, wherein the parameters include settings relating to a stepper that can be used in exposing the mask during photolithography.

9. The method of Claim 8, wherein the settings include at least one of wavelength, numerical aperture, reduction, defocus, and illumination.

10. The method of Claim 1, wherein managing and distributing the job is performed by a job manager.

11. The method of Claim 10, wherein the job manager allows multiple jobs to be run in parallel.

12. The method of Claim 10, wherein the job manager schedules multiple computation resources to run one or more jobs.

13. The method of Claim 1, wherein the results include multiple levels for user review.

14. The method of Claim 13, wherein one level includes an overall summary of simulations performed on the defects.

15. The method of Claim 14, wherein the overall summary includes defect scoring of the defects.

16. The method of Claim 13, wherein one level includes a defect map of the defects on the mask.

17. The method of Claim 16, wherein the defect map is color-coded based on a defect severity associated with each defect.

18. The method of Claim 17, wherein a high defect severity is indicated by a flashing light.

19. The method of Claim 13, wherein one level can provide an aerial image of each defect and a reference image of an area corresponding to that of the defect.

20. The method of Claim 1, further comprising:

entering a status for each defect based on a user's review of the results of the job.

21. The method of Claim 20, further comprising:

providing a history of statuses for each defect based on users' reviews of the results of the job.

22. The method of Claim 1, further comprising:

accessing the results of the job using a web browser.

23. A system for analyzing a mask for use in photolithography, the system comprising:

an application server for running a defect analysis tool;

means for loading a mask file into the defect analysis tool;

means for specifying a job to be run using the mask file, wherein the job defines parameters used in processes performed uniformly for defects on the mask;

computation resources for running the job;

a job manager for distributing the job to the computation

resources and receiving results of the job from the computation resources; and

means for outputting results of the job, wherein the results include printability results for the defects on the mask.

24. The system of Claim 23, further including means for converting mask data into a standard mask format file (MFF).

25. The system of Claim 23, wherein the means for specifying the job includes means for defining parameters for settings relating to the mask.

26. The system of Claim 25, wherein the settings include at least one of mask type, phase of the mask, and transmission of the mask.

27. The system of Claim 23, wherein the means for specifying the job includes means for defining parameters for settings relating to an inspection system that provided information for the mask file.

28. The system of Claim 27, wherein the settings include at least one of an inspection system vendor and an inspection system model.

29. The system of Claim 23, wherein the means for specifying the job includes means for defining parameters for settings relating to a stepper that can be used in exposing the mask during photolithography.

30. The system of Claim 29, wherein the settings include at least one of wavelength, numerical aperture, reduction, defocus,

and illumination.

31. The system of Claim 23, further including storage for storing at least one of the parameters and the results of the job.

32. The system of Claim 23, wherein the job manager includes means for allowing multiple jobs to be run in parallel.

33. The system of Claim 32, wherein the job manager includes means for scheduling multiple computation resources to run one or more jobs.

34. The system of Claim 23, wherein the means for outputting results includes means for accessing the results via multiple review levels.

35. The system of Claim 34, wherein at least one review level includes an overall summary of simulations performed on the defects.

36. The system of Claim 35, wherein at least one review level includes a defect map of the defects on the mask.

37. The system of Claim 36, wherein the means for outputting includes means for color-coding the defect map based on a defect severity associated with each defect.

38. The system of Claim 37, wherein the means for color-coding the defect map includes means for providing a flashing colored light for any defect having a high defect severity.

39. The system of Claim 38, wherein at least one review level can provide aerial images of each defect and a corresponding reference image of that defect.

40. The system of Claim 23, further comprising at least one of:

means for entering a status for each defect based on a user's review of the results of the job; and

means for providing a history of statuses for each defect based on users' reviews of the results of the job.

41. The system of Claim 23, wherein the means for outputting provides a graphic user interface.

42. The system of Claim 41, wherein the means for outputting interfaces with a web browser to provide the graphic user interface.

43. A computer program product comprising:

a computer usable medium having a computer readable program code embodied there for causing a computer to analyze defects of a mask used in photolithography, the computer readable program code comprising:

code that loads a mask file into a defect analysis tool;

code that specifies a job to be run using the mask file, wherein the job defines parameters used in processes performed uniformly for defects on the mask;

code that manages and distributes the job to computation resources;

code that runs the job using the mask file and defined parameters on the computation resources; and

code that outputs results of the job, wherein the results

include printability results for the defects on the mask.

44. The computer program product of Claim 43, further including code that converts mask data into a standard mask format file (MFF).

45. The computer program product of Claim 43, wherein the parameters include settings relating to at least one of the mask, an inspection system that provided information for the mask file, and a stepper that can be used in exposing the mask during photolithography.

46. The computer program product of Claim 43, wherein the code that manages and distributes the job includes a job manager.

47. The computer program product of Claim 46, wherein the job manager allows multiple jobs to be run in parallel.

48. The computer program product of Claim 43, wherein the code that outputs results includes code for providing multiple review levels for a user.

49. The computer program product of Claim 43, further comprising at least one of:

code that enters a status for each defect based on a user's review of the results of the job; and

code that provides a history of statuses for each defect based on users' reviews of the results of the job.

50. A graphic user interface (GUI) for defect printability analysis on a photolithographic mask, the GUI comprising:

a main menu bar including:

a plurality of setting links;

a job run link; and

a plurality of review links.

51. The GUI of Claim 50, wherein the plurality of setting links include:

a mask setting link;

a stepper setting link; and

an inspection system link.

52. The GUI of Claim 51, wherein the mask setting link is associated with a mask parameter screen that allows a user to input parameters regarding the photolithographic mask, the parameters including a name, a type, a phase, and a transmission.

53. The GUI of Claim 51, wherein the stepper setting link is associated with a stepper parameter screen that allows a user to input parameters regarding a stepper usable for exposing the photolithographic mask, the parameters including a name, a wavelength, a numerical aperture, a reduction, a defocus, and an illumination.

54. The GUI of Claim 51, wherein the inspection system link is associated with a inspection system parameter screen that allows a user to input parameters regarding an inspection system used to inspect the photolithographic mask, the parameters including a name, a vendor, and a model.

55. The GUI of Claim 50, wherein the job run link is associated with a job parameter screen that allows a user to input parameters regarding a job to provide the defect printability analysis, the parameters including a job type and a

reuse old recipe.

56. The GUI of Claim 50, wherein the plurality of review links include:

a first level review link, the first level review link being associated with a first screen that allows a user to search for the defect printability analysis;

a second level review link, the second level review link being associated with a second screen that allows a user to view defect printability analysis results for the photolithographic mask; and

a third level review link, the third level review link being associated with a third screen that allows a user to view defect printability analysis results for each defect on the photolithographic mask.

57. The GUI of Claim 56, wherein the first screen includes filters to find particular mask data or jobs to review.

58. The GUI of Claim 56, wherein the second screen includes a representation of defect severity.

59. The GUI of Claim 56, wherein the third screen includes:

a defect image of each defect;

a reference image associated with that defect image; and

simulated results associated with those defect and reference images.

60. The GUI of Claim 56, wherein the third screen further includes a status parameter for each reviewed defect.